

Cancel claims 41-43.

Remarks

Claims 41-43 are cancelled. Claims 1-40 are under consideration and are the only claims in this application.

The Examiner issued a restriction requirement under 35 USC 121 between the following inventions:

Group I (claims 1-40) drawn to compositions; and  
Group II (claims 41-43) drawn to a process.

The Examiner articulates the reasons why these inventions are separate and patentably distinct and why restriction for examination purposes is proper.

The Examiner also requires Applicants to elect a single disclosed ultimate species for examination. In a telephone conversation with the Examiner on July 18, 2000, Applicants' agent provisionally elected with traverse to prosecute the invention of Group I and the single disclosed ultimate species of Example 8 where compound E is tris(N,N-diethylhydroxylammonium) citrate in combination with CIBAFast® W. These particular species are claimed specifically in claims 6 and 11.

Applicants cancel claims 41-43 without prejudice to their filing a divisional application to claim the invention embraced therein.

The Examiner notes that claims 12-34 stand withdrawn from further consideration as being drawn to a non-elected invention.

Applicants respectfully request the Examiner to reconsider and to examine claims 12-34 as well in light of the following:

a. First, there is clear evidence as seen in instant working Example 1 that N,N-diethyl-

hydroxylamine when used alone exhibits substantial inhibition of yellowing of a BTMP sheet as inspection of the PC number values attest. Clearly, the hydroxylamine alone is an effective material in the context of the instant invention.

b. Second, as seen in instant working Example 7 the combination of N,N-diethylhydroxylamine and UV absorber CIBAFast® W shows very effective inhibition of yellowing of BTMP sheets.

c. Third, as seen in instant working Example 8, the combination of tris(N,N-diethylhydroxylammonium) citrate and CIBAFast® W shows very effective inhibition of yellowing of BTMP sheets essentially comparable to the PC number values seen for the combination in Example 7, as explained in b.

d. On page 3, lines 15-25 of the Specification, a paper by Dr. Cyril Heitner summarizes the state of the art in attempts to reduce the undesired yellowing of lignin-containing pulps (and paper). He outlines the various prior art methods (as of 1996) where a host of coadditives are used including UV absorbers, polyalkylene glycols, chelating agents, thiols and the like.

In the instant invention, Applicants aver that the N,N-dialkylhydroxylamines are their prime stabilizer (as witnessed by the showing of Example 1), but that they have also combined the N,N-dialkylhydroxylamine or its acid salts with a large number of the coadditives mentioned by Dr. Heitner in his 1996 paper and which combinations are covered by instant claims 12-34 of this application.

Claims 1-11 and 35-40 are rejected under 35 USC 103(a) as obvious over Seltzer et al. ('511) in view of Rodgers et al. ('222) for reasons of record.

The Examiner notes that Seltzer et al. teach adding mixtures of UV absorbers (such as CIBAFast® W) and light stabilizing agents (such as N,N-diethylhydroxylamine) to polymer coating compositions.

The Examiner used the Rodgers reference to teach that such polymer coating compositions as mentioned by Seltzer et al. may include benzotriazoles (including specifically CIBAFast® W) to

coat paper and textile to prevent the fading of dyes.

The Examiner concludes that it would be obvious to one of ordinary skill in the art to use the polyesters and polurethanes of Seltzer et al. containing a benzotriazole and N,N-diethylhydroxylamine to coat paper and textiles to prevent the fading of dyes, e.g. prevent loss of brightness, and to use the CIBAFast® W of the Rodgers reference to perform as taught by Seltzer et al.

Applicants respectfully traverse these rejections.

1. The compounds of Seltzer et al. are low basicity hindered amines designed particularly for use in thermoset acrylic resins which are classically cured using acidic catalysts. These low basicity hindered amines do not interfere with the curing cycle of such resins as they do not react unfavorably with the acid catalysts.

Although the Seltzer compounds are aimed particularly at such acid catalyzed resins, the low basicity hindered amines of Seltzer et al. are also useful in a host of polymer substrates including inter alia polyurethanes, polyesters and polypropylene.

Indeed, Seltzer et al. also note that a host of coadditives might be advantageously used in conjunction with the low basicity hindered amine. There is absolutely no emphasis put on the possibility of using a hydroxylamine per se as said coadditive. One would have to pick and choose from a myriad of possible coadditives to arrive at N,N-diethylhydroxylamine as the coadditive of choice.

2. It is true that many of the polymer compositions disclosed by the Seltzer et al. are indeed used as coating compositions containing a polymer substrate stabilized with some stabilizer combination. See, for example, Examples 12-14 of Seltzer et al. where automotive coatings are exemplified. Such systems are a far cry from the instant invention. However, the instant invention does not involve such coating compositions where a stabilized polymer composition is coated onto pulp or paper. Indeed, in this case an aqueous solution of a stabilizer or combination of stabilizers in the total absence of any polymer substrate is applied to a pulp or paper in order to reduce loss of brightness of the pulp or paper and to inhibit the yellowing of said pulp or paper, particularly when some lignin is present.

3. The Rodgers reference teaches the use of polyurethane or polyester compositions which contain a UV absorber and a low basicity hindered amine (same type of compounds as Seltzer et al.) to coat wood, paper, textiles or leather to prevent the degradation of the coated substrate.

The arguments noted about in paragraph 2 pertain here as well. The instant invention involves the use an aqueous solution of a stabilizer or combination of stabilizers in the total absence of any polymer substrate in the "coating" composition.

4. As reference to the publication by Dr. Heitner cited earlier on page 3 of the Specification attests, it was known in the art in 1996 that UV absorbers might be useful (although not sufficient) in protecting pulp or paper containing lignin from loss of brightness and providing resistance to yellowing. Thus the use of UV absorber such as CIBAFAS<sup>®</sup> W is merely in harmony with the state of the art as Dr. Heitner disclosed.

5. It is the combination of a N,N-dialkylhydroxylamine with a coadditive such as a UV absorber like CIBAFAS<sup>®</sup> W or any of the other coadditives discussed in instant claims 12-34 which serves as the basis for the instant invention.

6. The Examiner appears to combine the teachings of Seltzer et al. and Rodgers et al. in the instant application by equating the fading of dyes with loss of brightness, i.e. what inhibits one will inhibit the other. Applicants wish to point out to the Examiner that the prevention of fading of a textile dye is not the same as preventing the loss of brightness in a pulp or paper containing lignin. Applicants aver that textile dyes possess an entirely different chemistry compared to pulp or paper containing lignin. Thus it is clear that what occurs with a textile dye may not necessarily have any relevance to what happens with a pulp or paper.

As mentioned supra, the behavior of dyes and lignin-containing pulp or paper in regards to stabilizing compositions differ significantly. When using lignin-free paper dyed yellow, the brightness of the paper increases during UV illumination since the lignin-free fibers in the sheets are stable to UV irradiation, but the yellow dye fades under these conditions.

The addition of either a lower or a higher concentration of a stabilizer composition containing a benzotriazole UV absorber and a hydroxylamine radical scavenger does not prevent the yellow dye

from fading, but still the brightness of the paper increases during UV irradiation.

By contrast, when a paper containing the same yellow dye, but where the paper contains now a sizable amount of lignin-containing fibers, the brightness of the paper decreases during UV irradiation when no stabilizer is present. Although the yellow dye is fading under these conditions, the lignin-containing fibers in the paper are yellowing.

When a small concentration of a stabilizing composition (benzotriazole UV absorber and hydroxylamine radical scavenger) is added, the brightness remains stable during UV irradiation since the yellowing of the lignin-containing fibers just balances the fading of the yellow dye.

When a higher concentration of the stabilizer composition is added to the paper containing lignin-containing fibers, brightness again increases because the yellowing of the lignin-containing fibers are sufficiently stabilized so that the fading of the yellow dye is easily observed.

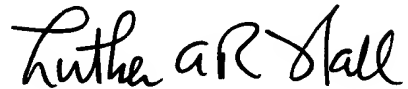
Clearly, the stabilizing composition reduces loss of brightness for lignin-containing fibers (paper), but does nothing for dye fading.

Applicants submit that it is not obvious that compositions which are effective against dye fading would also prevent loss of brightness in lignin-containing papers. (Applicants note that Rodgers et al. disclose compositions that stabilize, leather, paper, wood or textiles, but only actually show the stabilization of leather - which does not contain lignin.)

For all these reasons, Applicants submit that the instant compositions containing a N,N-dialkylhydroxylamine plus a coadditive such as a UV absorber (or other coadditives claimed in claims 12-34) are not obvious over Seltzer et al. in view of Rodgers et al., and respectfully ask the Examiner to reconsider and to withdraw the rejections under 35 USC 103(a).

Applicants aver that the instant claims are now in condition for allowance and respectfully request the Examiner to find them allowable.

Respectfully submitted,

A handwritten signature in cursive script that reads "Luther A. R. Hall".

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